

CLAIMS

[1] A speaker system comprising:

a cabinet in which a sealed chamber sealed from outside air is formed in at least a portion of an interior chamber of the cabinet;

a speaker unit provided in a first opening formed in the cabinet;

an adsorption member, disposed in the sealed chamber of the cabinet, for physically adsorbing gas in the sealed chamber;

10 and

a variable mechanism, provided in a second opening, different from the first opening, formed in the cabinet, for varying a volume of the sealed chamber of the cabinet in accordance with at least a pressure variation of a direct current component, the pressure variation occurring in the sealed chamber, wherein

the variable mechanism includes

a plate member, and

a supporting member, fixed on the second opening, for supporting the plate member such that the plate member is capable of being displaced in a direction in which the volume of the sealed chamber increases or decreases.

[2] The speaker system according to claim 1, wherein the adsorption member is a porous material.

[3] The speaker system according to claim 1, wherein the adsorption member is activated carbon.

[4] The speaker system according to claim 1, wherein

5 the interior chamber of the cabinet is formed only by the sealed chamber,

the plate member of the variable mechanism is displaced, more easily than a diaphragm of the speaker unit, in accordance with at least the pressure variation of the direct current component, 10 the pressure variation occurring in the sealed chamber, in the direction in which the volume of the sealed chamber increases or decreases, and

a resonance frequency of the variable mechanism is lower than that of the speaker unit.

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[5] The speaker system according to claim 4, further comprising a drone cone provided in a third opening, different from the first and the second openings, formed in the cabinet, wherein

20 the plate member of the variable mechanism is displaced, more easily than a diaphragm of the drone cone, in accordance with at least the pressure variation of the direct current component, the pressure variation occurring in the sealed chamber, in the direction in which the volume of the sealed chamber increases or 25 decreases, and

the resonance frequency of the variable mechanism is lower than that of the drone cone.

[6] The speaker system according to claim 1, wherein

5 the variable mechanism further includes a first parting board for separating the sealed chamber into a first chamber in which the adsorption member is disposed, and a second chamber contacting the plate member and the supporting member,

a sound hole for passing air between the first chamber
10 and the second chamber is formed through the first parting board, and

the sound hole functions as a lowpass filter having a cut-off frequency lower than a frequency of a bass reproduction limit of the speaker unit.

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[7] The speaker system according to claim 6, wherein

the interior chamber of the cabinet is formed only by the sealed chamber separated into the first and the second chambers, and

20 the plate member of the variable mechanism is displaced, more easily than a diaphragm of the speaker unit, in accordance with at least the pressure variation of the direct current component, the pressure variation occurring in the sealed chamber, in the direction in which the volume of the sealed chamber increases or
25 decreases.

[8] The speaker system according to claim 7, further comprising a drone cone, contacting the first chamber, provided in a third opening, different from the first and the second openings, formed in the cabinet, wherein

the plate member of the variable mechanism is displaced, more easily than a diaphragm of the drone cone, in accordance with at least the pressure variation of the direct current component, the pressure variation occurring in the sealed chamber, in the direction in which the volume of the sealed chamber increases or decreases.

[9] The speaker system according to claim 6 further comprising:

a second parting board for separating the first chamber from a third chamber, contacting the speaker unit, which is not included in the sealed chamber;

a transmission mechanism, provided in an opening formed through the second parting board, for transmitting a pressure variation in the third chamber in a reproduction frequency range of the speaker unit to the first chamber; and

a port, provided in the cabinet, for exposing the third chamber to an exterior of the cabinet, wherein

the transmission mechanism includes

a diaphragm, and

a suspension, fixed on the opening formed through the second parting board, for supporting the diaphragm such that the diaphragm is capable of being vibrated in accordance with a reproduction sound pressure of the speaker unit, and

5 the plate member of the variable mechanism is displaced, more easily than the diaphragm of the transmission mechanism, in accordance with at least the pressure variations of the direct current component, the pressure variations occurring in the first and second chambers, in a direction in which the volume of the
10 sealed chamber formed by the first and second chambers increases or decreases.

[10] The speaker system according to claim 9, wherein
 an area of the plate member of the variable mechanism
15 is larger than that of the diaphragm of the transmission mechanism.

[11] The speaker system according to claim 9, wherein
 a stiffness of the supporting member of the variable
 mechanism is smaller than that of the suspension of the transmission
20 mechanism.